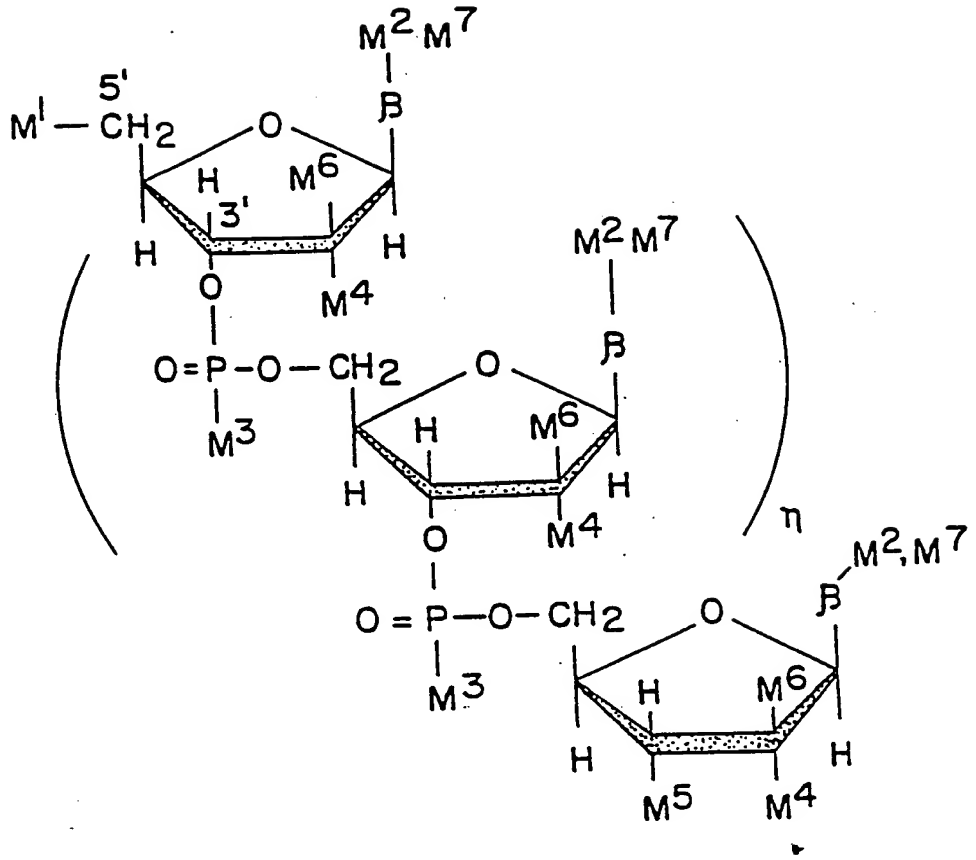


η = 1 – 50

M = H, OH, XR, Halogen, N_3

FIGURE 1A

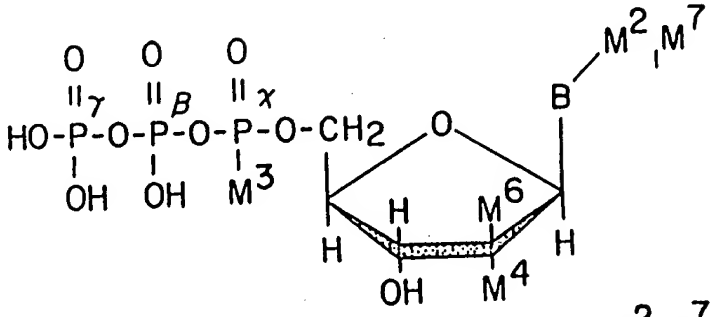
66nT60 60nS6E60

	M^1	M^2	M^3	M^5
Type Ia (base modified DNA)	OH	XR/Hal	OH	H
Type Ib (base modified RNA)	OH	XR/Hal	OH	OH
Type IIa (5'-modified DNA)	XR/Hal	H	OH	H
Type IIb (5'-modified RNA)	XR/Hal	H	OH	OH
Type III (3'-modified)	OH	H	OH	XR/Hal
Type IVa (P-modified DNA)	OH	H	XR	H
Type IVb (P-modified RNA)	OH	H	XR	OH

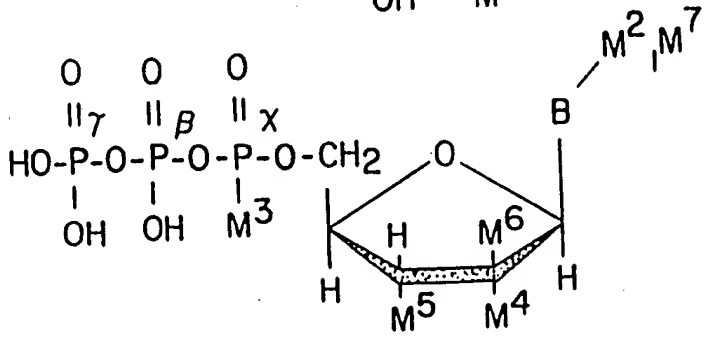
FIGURE 1B

66hT60 60hS6E60

Nucleoside Triphosphate Elongators:



Nucleoside Triphosphate Terminators:



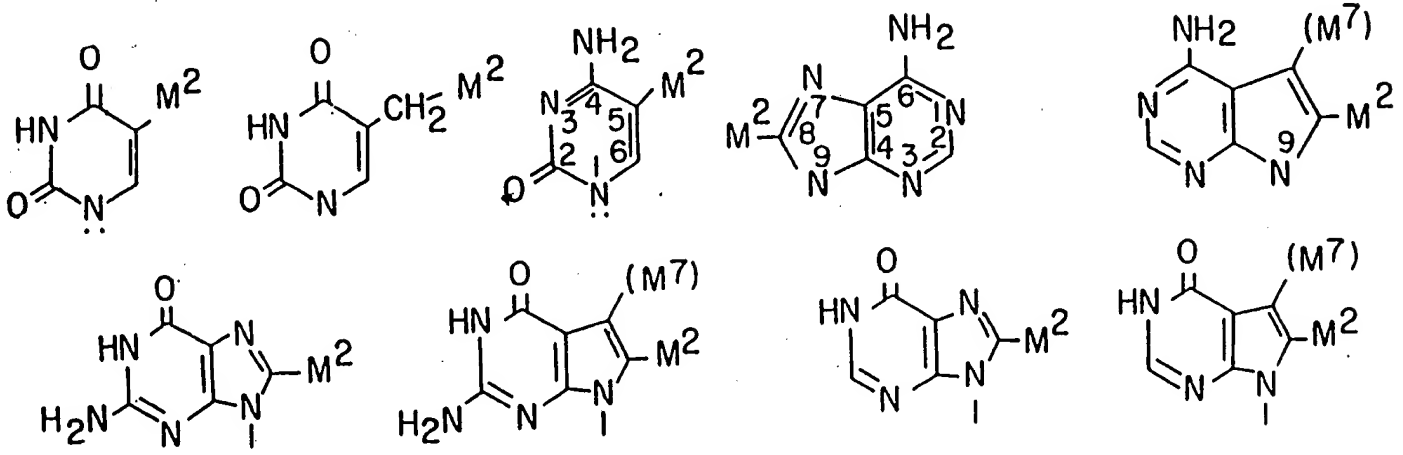
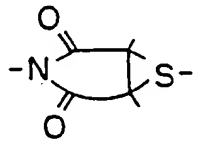


FIGURE 2A

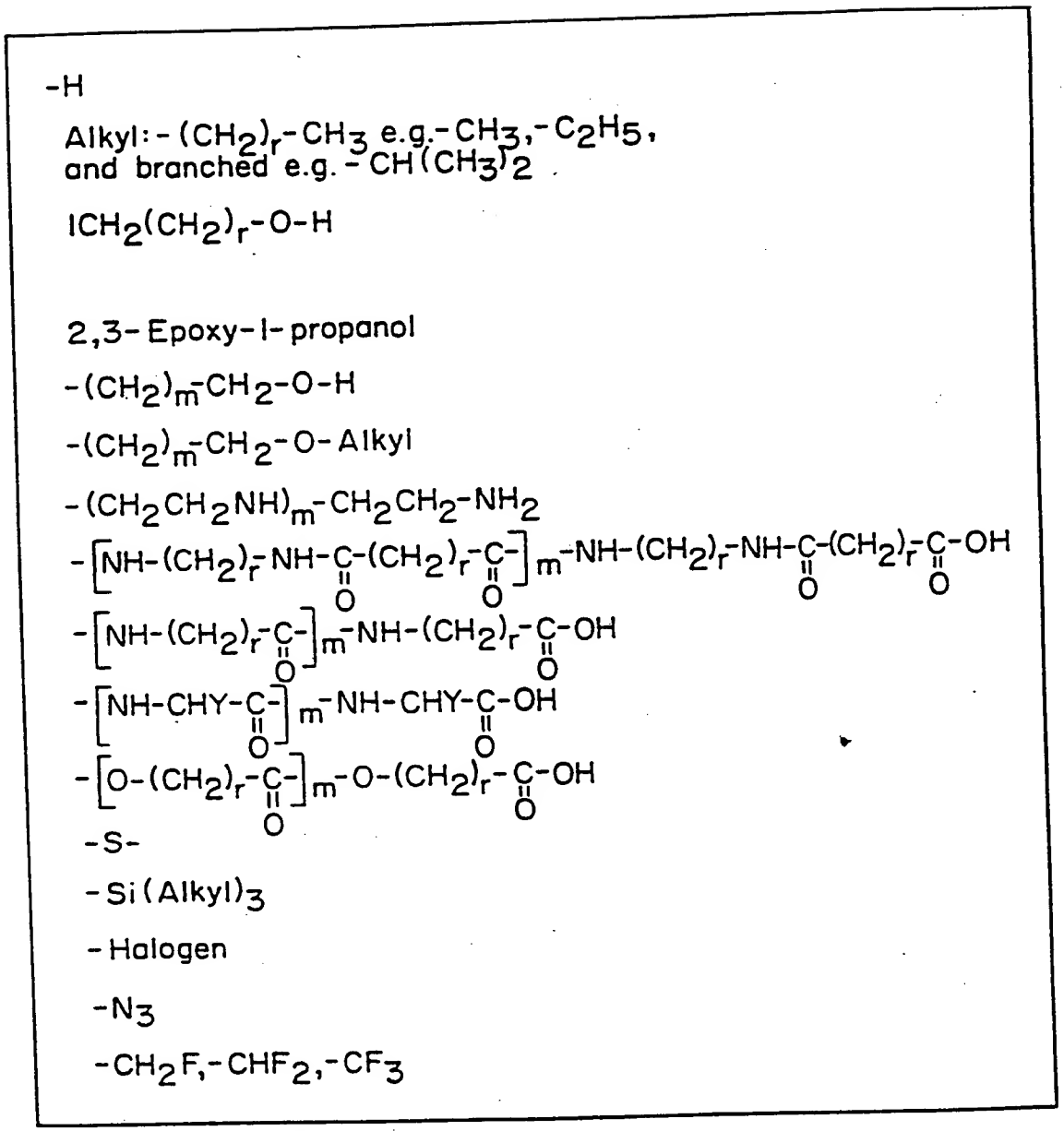
	M^2	M^3	M^4	M^5
Type A (DNA-Termination)	XR	OH	H	H
Type B (DNA-Termination)	H	OH	H	XR
Type C (DNA-Termination)	H	XR	H	H
Type D (RNA-Termination)	XR	OH	OH	H
Type E (RNA-Termination)	H	OH	OH	XR
Type F (RNA-Termination)	H	XR	OH	H

FIGURE 2B

X	R
-O-	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2O-Alkyl$
$-O-C-(CH_2)_r-C-O-$ (O, O)	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
$-NH-C-/-C-NH-$ (O, O)	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
$-NH-C-(CH_2)_r-C-O-$ (O, O)	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
$-NH-C-NH-$ (S)	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
$-O-P(O)(O-Alkyl)-$	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
$-O-SO_2-O-$	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
$-O-C(=O)-CH_2-S-$	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
-S-	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$
-NH-	$-(CH_2CH_2O)_m-CH_2CH_2-OH$ or $-(CH_2CH_2O)_m-CH_2CH_2-O-Alkyl$

m= 0, 1-200
r = 1-20

FIGURE 3



m = 0, 1 - 200
r = 1 - 20

FIGURE 4

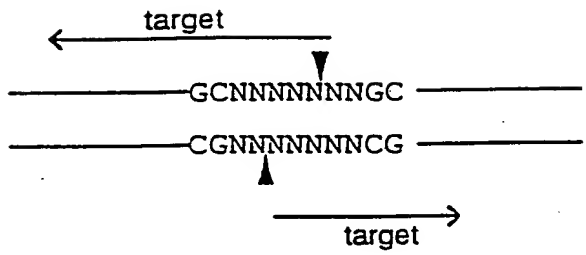


FIGURE 5

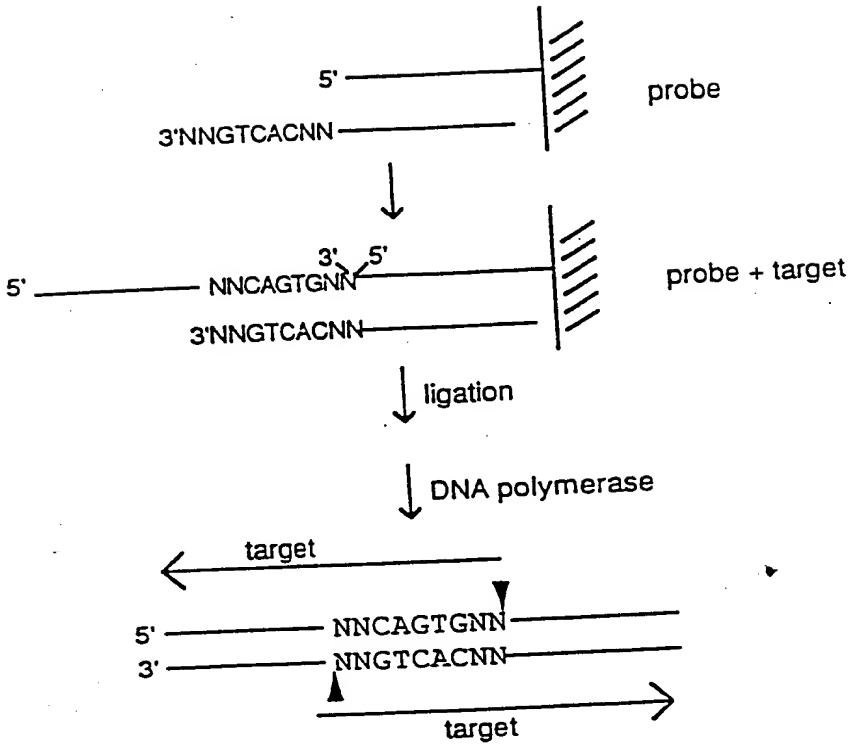

5'
3'NNGTCACNN
probe
3'
5'
5'
NNCAGTGNN
3'NNGTCACNN
probe + target
ligation
DNA polymerase
target
5'
NNCAGTGNN
3'
NNGTCACNN
target

FIGURE 6

Nucleic Acid Structure	Calculated T_m (°C, average base composition) n= 8	7	6	5
	38	33	25	15
	33	25	15	3
	25	15	3	-14
	51	46	40	31
	46	40	31	21
	40	31	21	11

FIGURE 7

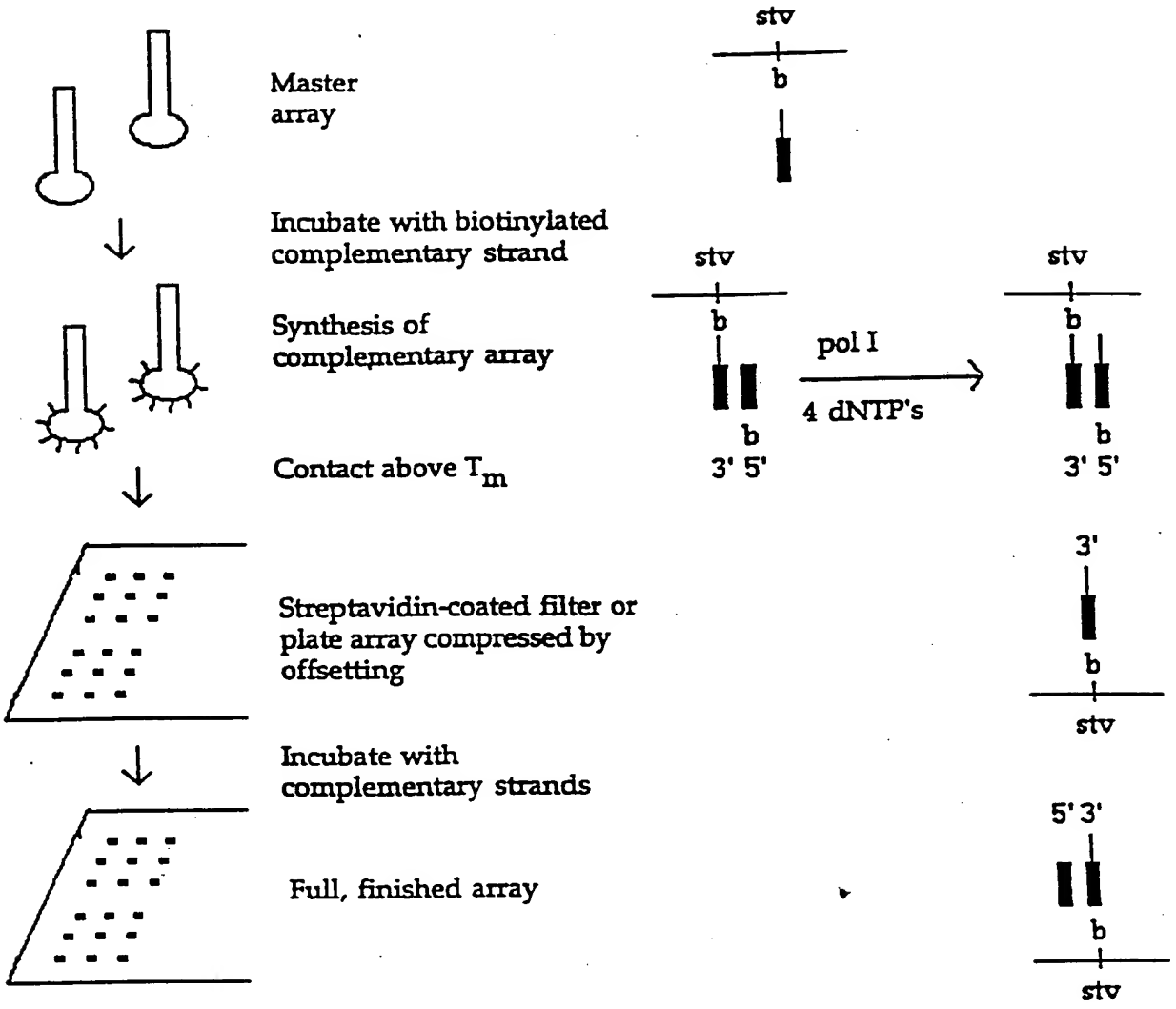

Master
array
Incubate with biotinylated
complementary strand
Synthesis of
complementary array
Contact above T_m
Streptavidin-coated filter or
plate array compressed by
offsetting
Incubate with
complementary strands
Full, finished array
stv
b
pol I
4 dNTP's
3' 5'
5' 3'

FIGURE 8

66nT60" 60n56E60

Reaction Scheme for the Covalent Attachment of DNA to a Surface

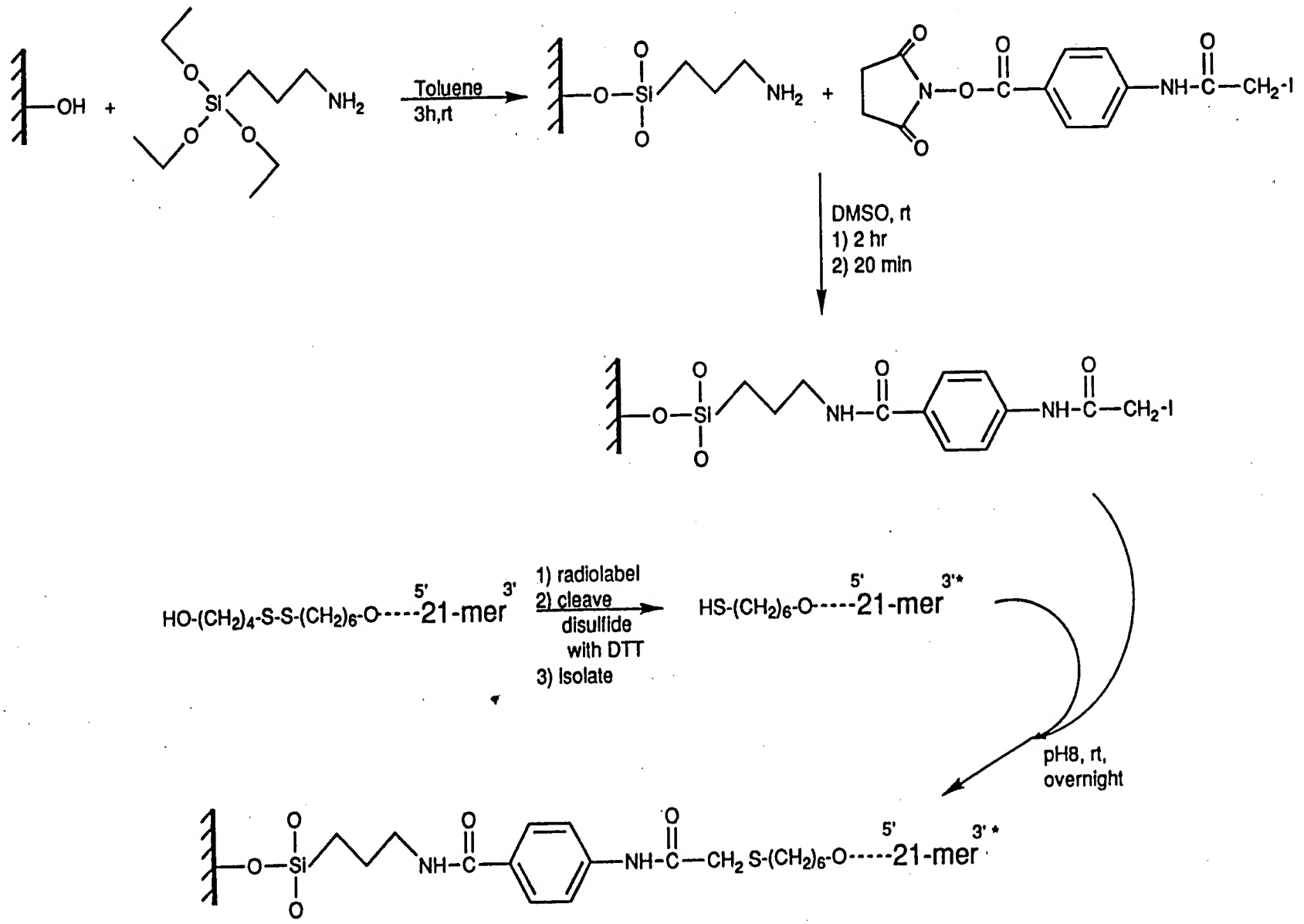


FIGURE 9

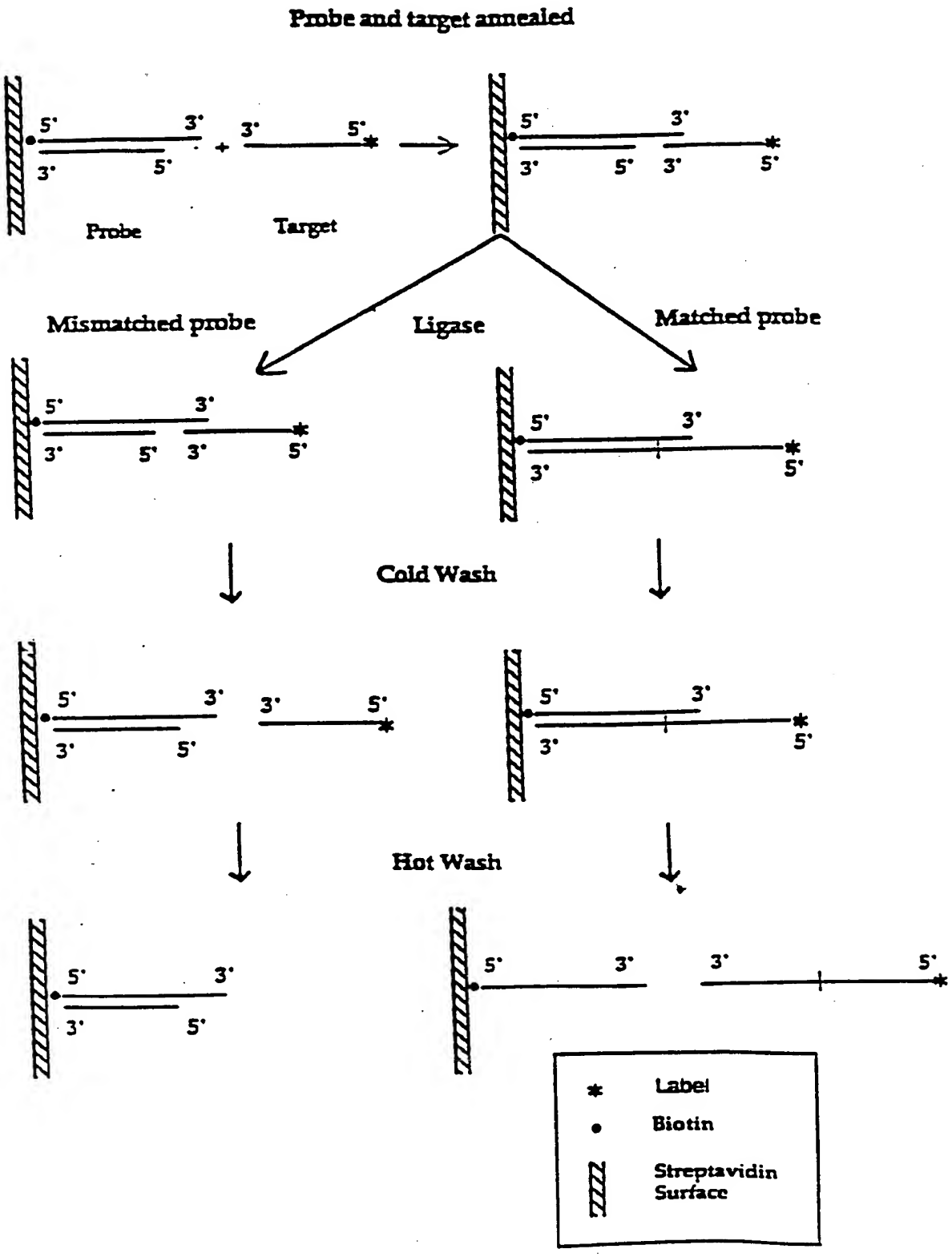

Probe and target annealed
5'
3'
3'
5'
Probe
Target
Mismatched probe
Ligase
Matched probe
Cold Wash
Hot Wash
Label
Biotin
Streptavidin Surface

FIGURE 10

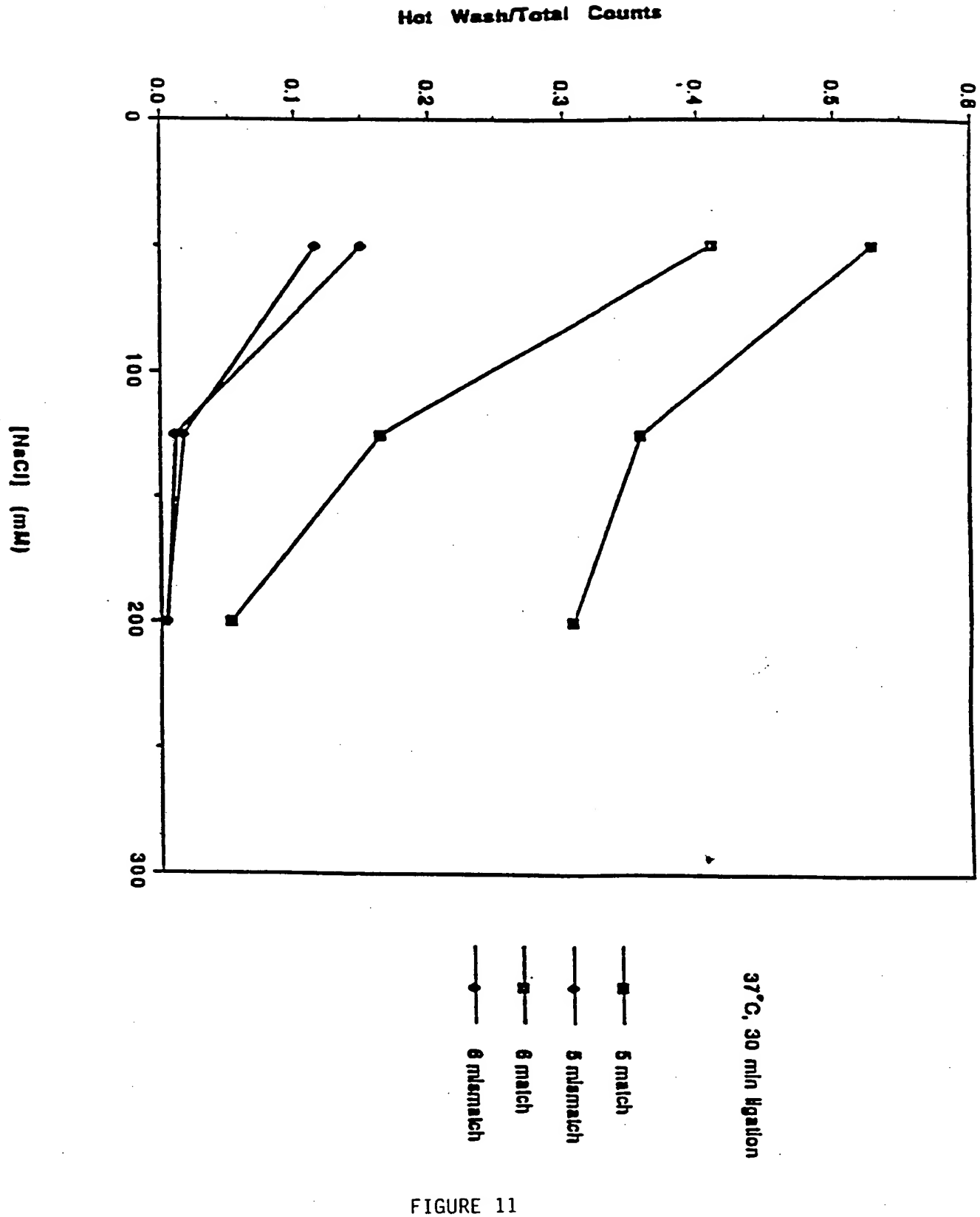

Hot Wash/Total Counts
0.0
0.1
0.2
0.3
0.4
0.5
0.8
0
100
200
300
[NaCl] (mM)
37°C, 30 min ligation
5 match
5 mismatch
6 match
6 mismatch

FIGURE 11

Ligation of target DNA with probe

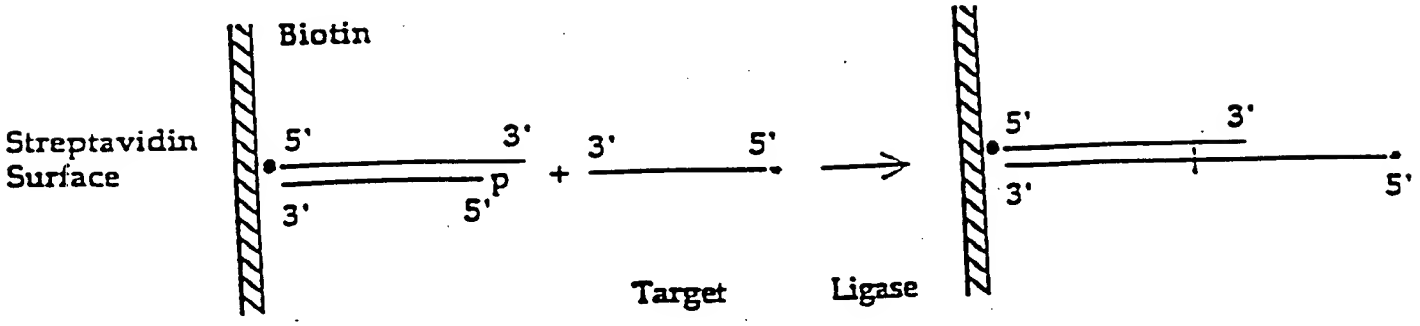


Figure 12 A.

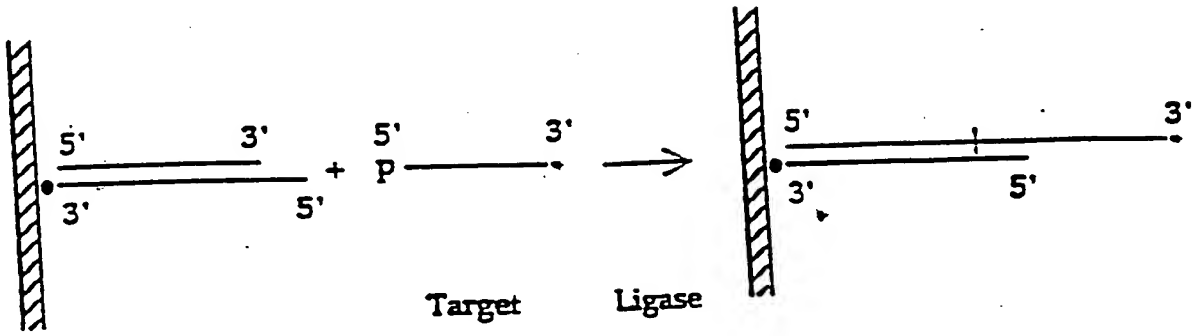


Figure 12 B.

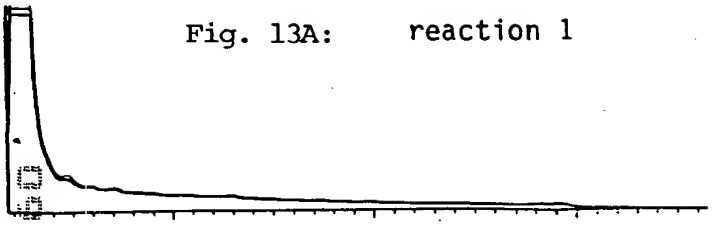


Fig. 13A: reaction 1

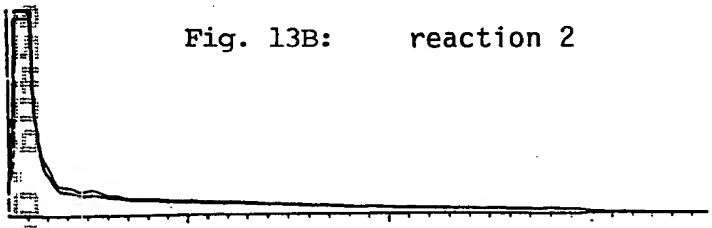


Fig. 13B: reaction 2

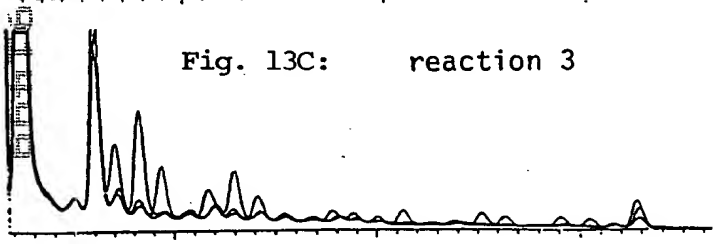


Fig. 13C: reaction 3

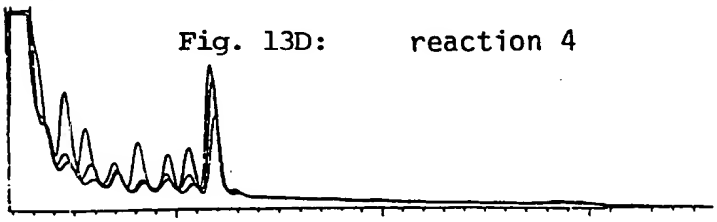


Fig. 13D: reaction 4

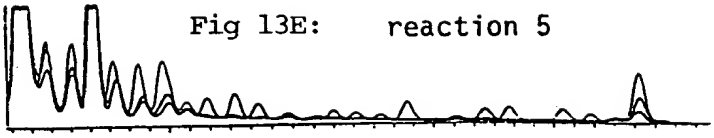


Fig 13E: reaction 5

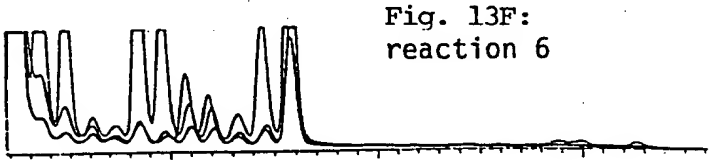


Fig. 13F: reaction 6

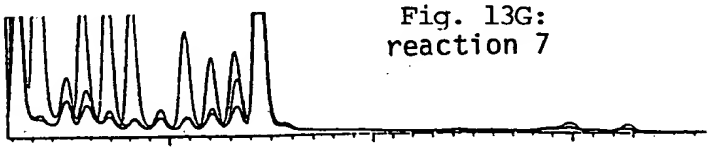


Fig. 13G: reaction 7

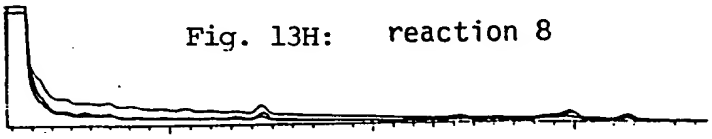


Fig. 13H: reaction 8

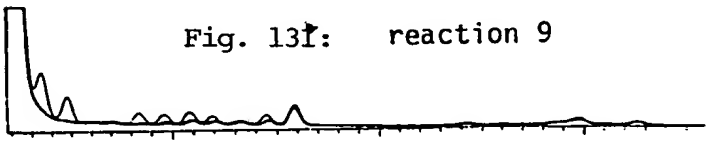


Fig. 13I: reaction 9

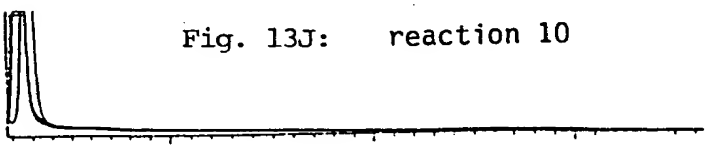


Fig. 13J: reaction 10

66hT60" 60h562E60

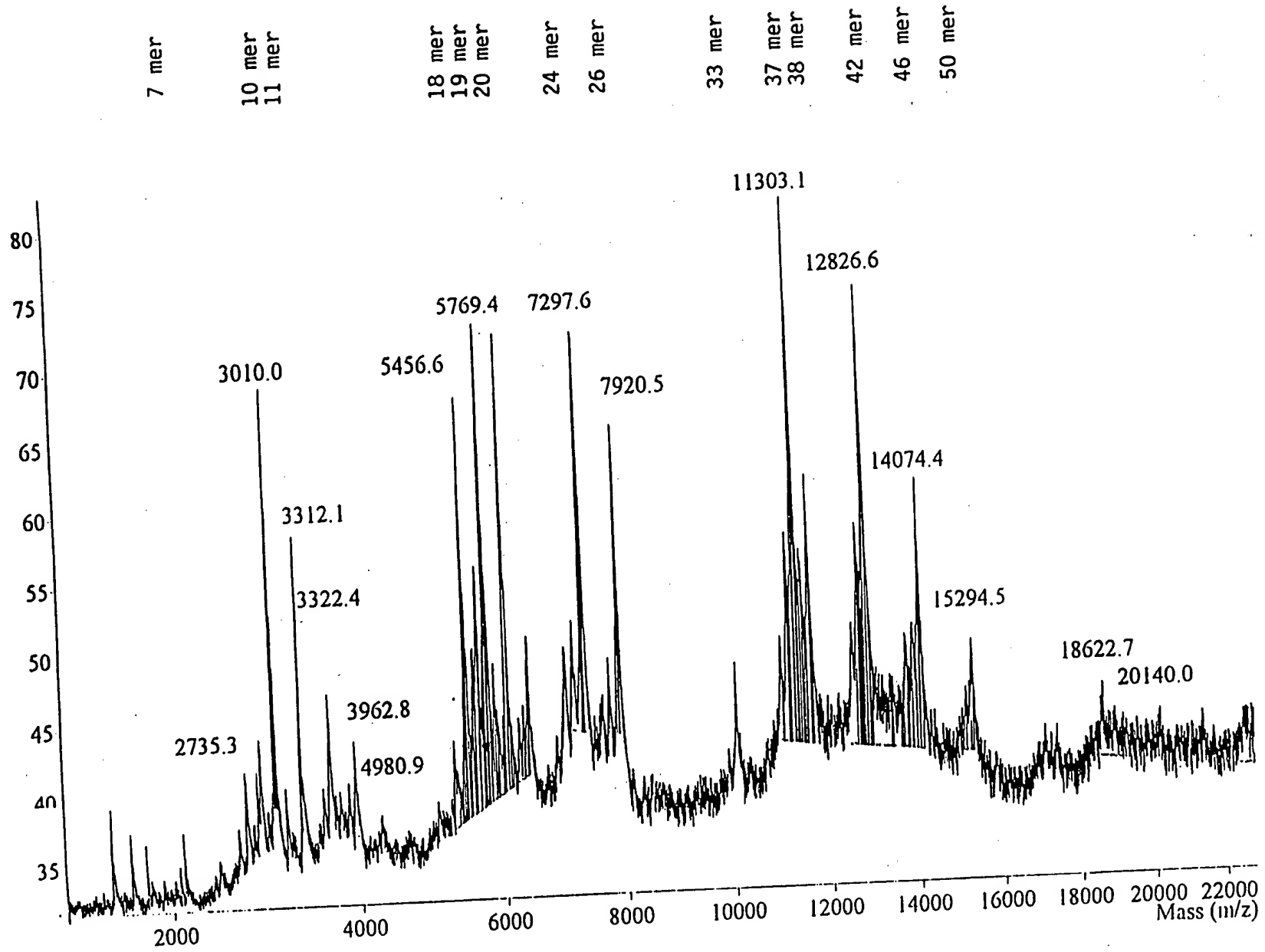


FIGURE 14

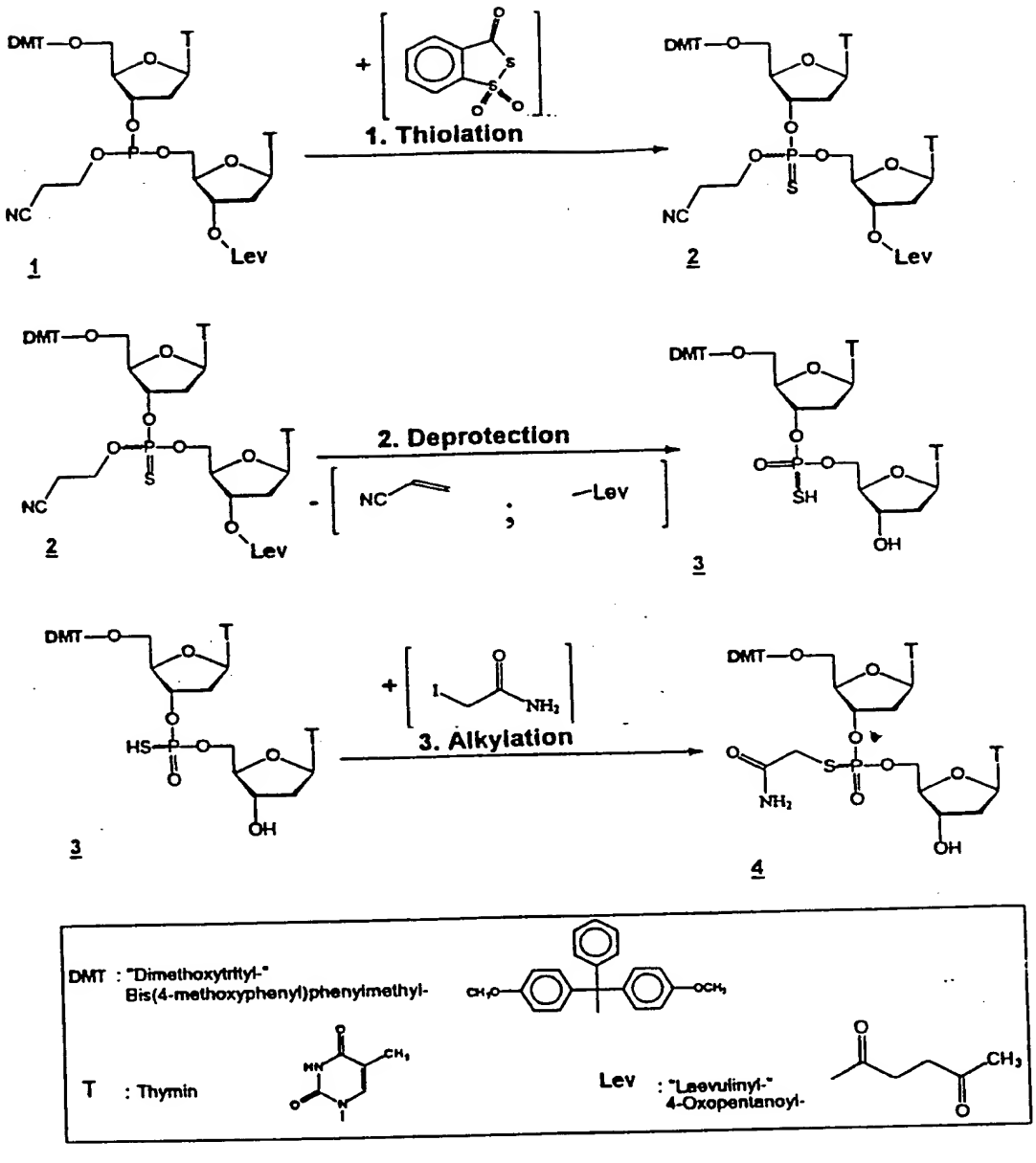

1. Thiolation
2. Deprotection
3. Alkylation
DMT : "Dimethoxytrityl-" Bis(4-methoxyphenyl)phenylmethyl-
T : Thymin
Lev : "Laevulinyl-" 4-Oxopentanoyl-

FIGURE 15

60nT60" 60h56260

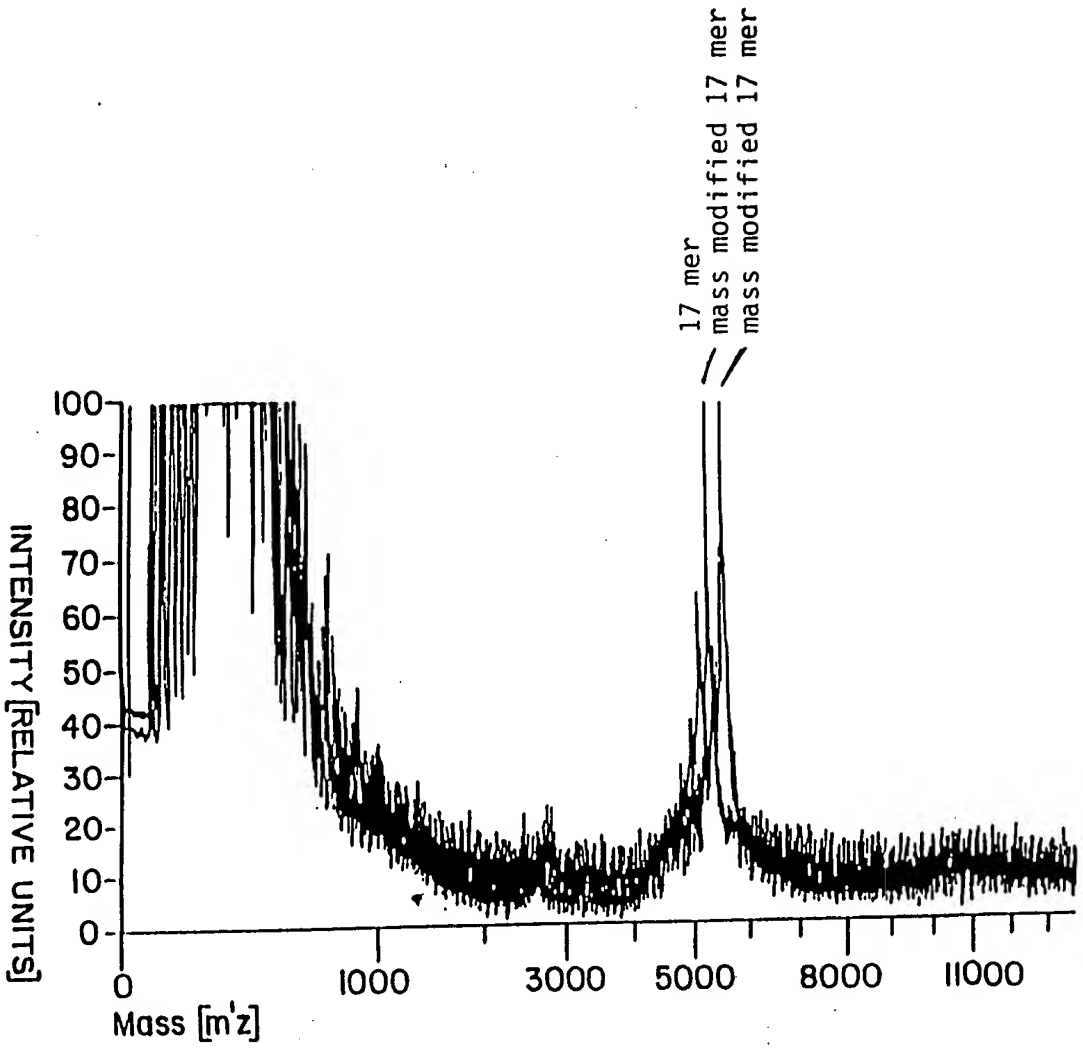


FIGURE 16